SINGING BRIDGE
(State Bridge Number 00349)
US Route 1, over tha Patchogue River
Westbrook
Middlesex County
Connecticut

HAER No. CT-167

HAER
CONN
4-WESBK,
2-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORICAL AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
Philadelphia Support Office
U.S. Custom Housa
200 Chestnut Streat
Philadelphia, Pennsylvania 19106

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HISTORIC AMERICAN ENGINEERING RECORD

SINGING BRIDGE
(State Bridge Number 00349)

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Location: U.S. Route 1 over Patchogue River
Westbrook
Middlesex County, Connecticut

USGS Essex, CT Quadrangle
Universal Transverse Mercator Coordinates: 18.712040.4572840

Engineer/Architect: State of Connecticut Highway Commission

Fabricator: American Bridge Company

Date of Construction: 1925

Present Owner: State of Connecticut
Department of Transportation
2800 Berlin Turnpike
Newington. CT 06131

Present Use: Active highway bridge

Significance: Singing Bridge, State Bridge Number 00349, has been determined eligible for listing to the National Register of Historic Places by the Connecticut State Historic Preservation Office (SHPO). Singing Bridge is significant for its association with the growth of the Connecticut state government's responsibility for bridge construction and design, and was the largest project in a phase of smaller bridge reconstructions undertaken along U.S. Route 1 during the 1920s. Singing Bridge is significant as a well-preserved example of an early-twentieth-century Pratt steel truss highway bridge, and as an example of a bridge designed as a response to the increasing motor vehicle weights of the 1920s.

Project Information: The Connecticut Department of Transportation (CONNDOT) proposes to demolish and replace Singing Bridge. The proposed project will impact the historic and engineering integrity of this property. In accordance with a Memorandum of Agreement between CONNDOT and the Connecticut SHPO, Historic American Engineering Record documentation is to be prepared for the bridge in order to mitigate the adverse effect of demolition.

Virginia H. Adams, Senior Architectural Historian
Matthew A. Kierstead, Industrial Historian

The Public Archaeology Laboratory, Inc.
210 Lonsdale Avenue
Pawtucket, Rhode Island 02860

PART I DESCRIPTIVE INFORMATION

Singing Bridge is located on U.S. Route 1 where it crosses the Patchogue River in Westbrook, Connecticut. The bridge is approximately one mile west of the center of Westbrook, and two-thirds of a mile north of the confluence of the Patchogue and Menunketesuck rivers, where they enter Long Island Sound. The bridge is located in an area characterized by open tidal marsh to the northeast, and recreational boat marinas to the northeast and south.

The bridge consists of three major components, consisting of a riveted, steel, 117 ft-long, Pratt through-truss, supported by two monolithic reinforced concrete approach structures. Together these structures measure 262 feet in length. The 120 ft-long truss is 29 ft, 4 in wide, and carries a two-lane, 28 ft, 7 in, 7702 sq ft, open-grid steel roadway deck. The top and bottom chords and the end posts are of box-girder construction. The top chords have solid tops and sides, and open, lattice bar bottoms. The bottom chords have solid sides, and open tops and bottoms with regularly spaced rectangular plates. The end posts are solid with open bottoms with regularly spaced rectangular plates. The diagonals and verticals are built up with L-angle sides joined by lace bars. All web members are riveted to polygonal gusset plates at their terminations. The top chords are connected by intersecting diagonal lattice-bar bracing, and transverse lattice bar braces at the panel points. The portal braces are deeper, with prominent single-intersection lattice and curved, solid gusset plates. The floor is of floor beam-and-stringer construction, with eleven longitudinal stringers supported by seven transverse floor beams, strengthened by diagonal intersecting lateral bracing. Interlocking, toothed expansion joints are located where the deck meets the approach spans. There are no sidewalks on the steel grid deck; however, narrow walking lanes with concrete-filled grid strips are located on either side of the open-grid deck roadway. The truss rests on pinned bearings on the west end, and sliding lenticular rocker bearings on the east end to allow for expansion, contraction, and flexion of the span. A steel curb, and a welded steel angle section railing with stamped, galvanized guardrail runs along the inside of each web. A 12 in, cast-iron water main is mounted on the north bottom chord of the bridge.

The truss is supported by reinforced concrete approach structures, the east approach measuring 47 ft long, and the west measuring 86 ½ ft long. The approach structures are of cast-in-place, reinforced concrete frame construction, with the deck integrally poured with supporting T-beams to create two monolithic structures. The deck is supported by a combination of transverse beams and longitudinal beams on piers. The interiors are accessible through manways cast into the north and south sides of each approach. The approaches and abutments rest on timber piles. A two-cable, timber-supported guard railing runs along the tops of the approach spans.

PART II HISTORICAL INFORMATION

Singing Bridge is located on U.S. Route 1. This highway route between Boston and New York City is now known as the Boston Post Road. The Post Road was a mail and stagecoach road originally established in the Colonial Period. In the Westbrook area, the original Post Road ran to the north of U.S. Route 1, on an alignment that avoided the Patchogue River estuary. In 1880 the Post Road was straightened, and crossed the Patchogue River on a timber trestle approximately 50 ft north of the existing bridge. The remains of the original fieldstone abutment for the 1880 Post Road bridge still stand on the east bank of the river. The Post Road became part of U.S. Route 1 during the early twentieth century, when the U.S. highway system began to be organized into numbered, improved routes. The road was then the major northeast-southwest highway

in New England, linking coastal industrial cities and resort communities with Boston and New York. Singing Bridge replaced the 1880 timber trestle in 1925. U.S. Route 1 was later overshadowed by the construction of nearby Interstate 95 to the north.

Singing Bridge is significant for its association with the growth of the Connecticut state government's responsibility for highway bridge construction and design. In 1915 the Connecticut Highway Commission, originally authorized to control trunk-line highway construction, was given authority over trunk-line bridges. In response to this new authority the Commission made the improvement of the Boston Post Road its first priority. The Post Road improvements were a direct response to increasing automobile traffic, and the increasing weight of passenger vehicles, delivery trucks, and buses. During this period, many states replaced bridges due to unsafe conditions, increasing loads, and the development of state highway systems (Roth and Clouette 1988:32). The Highway Commission initially concentrated on the river crossings that required larger, moveable-span bridges. After the Mystic River drawbridge was completed in 1922, the Highway Commission began a program of widening and curvature and gradient improvements to the Post Road. Part of this phase of Post Road improvements included replacement of many smaller crossings, including the Patchogue River at Westbrook, Singing Bridge. This bridge was the largest span replaced in this phase of Post Road improvements. Singing Bridge was designed by the Connecticut Highway Commission. The Holbrook Company was the general contractor, and built the substructure for a cost of $38,174. The truss superstructure fabrication was subcontracted to the American Bridge Company, and cost $20,781. The bridge was opened for service in 1925 (Roth and Clouette 1990).

As originally constructed, Singing Bridge had earthen fill approaches connected to free-standing reinforced concrete abutments by short reinforced concrete slab spans. These structures began to settle shortly after construction, and were replaced by the current monolithic reinforced concrete approach structures, which rest on timber piles. As constructed, the bridge originally supported a solid concrete deck roadway. In 1951–1952 the bridge was reconstructed and the current open-grid steel deck installed (Connecticut Department of Transportation). The sound generated by motor vehicle tires passing over this new open grid deck at varying speeds has resulted in the bridge's local nickname, "The Singing Bridge".

Singing Bridge is significant as a well-preserved example of an early-twentieth-century Pratt steel truss highway bridge. This riveted bridge is a typical example of early-twentieth-century steel truss bridge designs, which typically settled on variations of the Pratt and Warren trusses that emerged as the dominant types from a variety of proprietary nineteenth-century iron and steel bridge designs (Condit 1961:82). In the Pratt-type truss, the vertical members are in compression and the diagonal members are in tension. Singing Bridge was fabricated by the American Bridge Company of Pittsburgh, Pennsylvania. American Bridge, a subsidiary of the United States Steel Corporation, was founded in 1900 and rapidly became a dominant steel fabrication concern, absorbing more than half of the nation's steel fabricating capacity (Darnell 1984:85-86).

PART III SOURCES OF INFORMATION

A. Plans and Drawings

Connecticut Department of Transportation, 2800 Berlin Turnpike, Newington, Connecticut.

B. Historic Views

Connecticut Department of Transportation, 2800 Berlin Turnpike, Newington, Connecticut.

C. Bibliography

Books

Condit, Carl W.
1961 *American Building Art: The Twentieth Century.* Oxford University Press, New York.

Darnell, Victor
1984 *Directory of American Bridge-Building Companies 1840–1900.* Society for Industrial Archaeology, Washington, D.C.

Unpublished Material

Connecticut State Department of Transportation
n.d. *Bridge Safety Files.* Connecticut State Department of Transportation, Newington, Connecticut.

Government Documents

Roth, Matthew and Bruce Clouette
1988 *Rhode Island Historic Bridge Inventory: Final Report—Part I: Inventory and Recommendations.* Rhode Island State Department of Transportation, Providence.

_____.
1990 *Historic Bridge Inventory Form for the Route 1 Patchogue River Bridge.* Connecticut State Department of Transportation, Hartford, Connecticut.

D. Interviews

None conducted

USGS Location Map
SINGING BRIDGE
(State Bridge Number 00349)
Westbrook
Middlesex County, Connecticut
Scale: 1:24,000